

**Remarks**

Claims 1-13 were pending in the application. Claims 1-13 were rejected. Claims 1-13 are amended. Claims 14-25 are added. Claims 1-25 are now pending. Claim 1 is the independent claim. Reconsideration of the amended application is respectfully requested.

The examiner objected to the specification as failing to provide proper antecedent basis for the claimed subject matter. The written description is amended to address the examiner's comments. Regarding the recitation of "suction coupling" and "delivery coupling" in claims 7 and 9, respectively, these elements are supported in the specification as filed, for example, in the paragraph beginning on page 7, at line 5. This paragraph is amended for clarity. The objection, therefore, should be withdrawn.

The examiner objected to the disclosure because of certain noted informalities. The written description is amended to address the examiner's comments. The objection, therefore, should be withdrawn.

The examiner required corrected drawings. Specifically, the examiner stated that Fig. 1 is composed of five figures, each of which must be labeled separately. Actually, Fig. 1 is a single drawing figure, showing an exploded view of the volumetric compressor 1, and the five major components 3, 6, 7, 8, 9 disassembled and connected by dashed lines. Therefore, the drawing sheet is amended to include a bracket to show that this exploded view is expressed in Fig. 1. See 37 CFR 1.84(h)(1); MPEP 608.02.

The examiner rejected claim 1 as being indefinite. Claim 1 is amended to address the examiner's comments. The rejection, therefore, should be withdrawn.

The examiner rejected claims 1-5 and 11 as being unpatentable over Browne, in view of Olofsson et al.



Independent claim 1 recites a method of providing and assembling, according to selected functional configurations, a volumetric compressor of the type comprising a pair of rotors cooperating with each other and housed inside a compressor body. This type of compressor body has a first flange arranged on the suction side of the compressor body and a second flange arranged on the delivery side of the compressor body. The first flange is suited to be coupled with a suction head and the second flange is suited to be coupled with a delivery head of the volumetric compressor. The method includes providing a first suction head including a coupling element adapted to couple to a suction pipe, and providing a second suction head including a coupling element adapted to couple to a suction pipe in combination with a motor unit. Each of the first and second suction heads is provided with a first counterflange, suited to be connected with the first flange of the compressor body. The method also includes providing a first delivery head including a coupling element adapted to couple to a delivery pipe, and providing a second delivery head including a coupling element adapted to couple to a delivery pipe in combination with an oil separator. Each of the first and second delivery heads is provided with a second counterflange suited to be connected with the second flange of the compressor body. The method also includes coupling the first flange of the compressor body with the counterflange of a selected either one of the first or second suction heads, and coupling the second flange of the compressor body with the counterflange of a selected either one of the first or second delivery heads.

Thus, the claimed method allows for alternative coupling of selected suction heads and delivery heads to a compressor body, to allow for a variety of different configurations of a volumetric compressor. This provides an advantage in that different combinations of



suctions heads and delivery heads can be easily attached to the compressor body to offer flexibility in the resulting type of compressor.

Browne discloses a compressor, including a compression unit 30 connected to a motor 32 within a casing 34. The Browne compressor is a complex design that compensates for low oil pressure or low drive shaft speed during operation and can be operated in either a vertical orientation or a horizontal orientation. The design also allows for certain interchangeability of parts to vary the capacity of the compressor.

However, Browne does not disclose or suggest a replaceable suction head. The examiner identified the unloader valve 270 as being a suction head. The unloader valve 270 is connected to the exhaust ports 248 of the high-pressure cylinders 164, 165 through an aftercooler 260 and a pipe 266, and to a discharge passage 292 through a tube 294. See column 7, lines 48-62; column 8, lines 4-16. Thus, the unloader valve 270 is not a suction head, and cannot function as a suction head because it is connected to the delivery portion of the compressor. Browne does not disclose or suggest a suction head that is replaceable in the manner of the method of claim 1, and does not disclose or suggest coupling elements on the suction side of the compressor.

The examiner identified the recess 326 of the Browne compressor as being an oil separator. This recess, or pocket, is formed in the base, and forms the lowest part of the oil reservoir regardless of whether the compressor is vertically or horizontally oriented. Browne does not disclose or suggest that this recess functions as an oil separator, and it cannot be reasonably asserted that Browne intends the recess 326 to act as an oil separator.

Olofsson et al. disclose a compressor having two or more compressor units, each of which is connected as a complete component to a transmission mechanism, independently of



each other. The Olofsson et al. compressor includes a housing 3 that has external flanges 35, 38. However, these flanges 35, 38 are bolted to corresponding flanges 36, 41 on a transmission casing to enable the proper engagement of gears, and not for suction head or delivery head coupling. See column 2, lines 40-51. It is unclear from the disclosure whether the Olofsson et al. compressor is adapted to work with the particular suction heads and delivery heads recited in claim 1.

Thus, although Olofsson et al. teach interchangeability of some compressor parts, neither reference teaches alternative coupling of various combinations of suction heads and delivery heads, as recited in claim 1, or that the replaceability of the particular claimed suction heads and delivery heads is possible.

It is unlikely that one of ordinary skill in the art would look to combine the teachings of these two references, given that Browne and Olofsson et al. disclose completely different compressor arrangements. For example, the Olofsson et al. compressor is connectable to an external motor through the use of gears, whereas Browne discloses a direct-drive compressor. Further, Olofsson et al. disclose a screw compressor, whereas Browne discloses a piston-type compressor. Olofsson et al. utilize a simple design so that multiple compressors can be advantageously connected to be driven by a common power transmission, whereas the Browne compressor has a complex design, featuring multiple stages, an intercooler, and aftercooler, and the corresponding network of connecting piping. The compressors are not compatible, and one of skill in the art would not look to one for teachings to be applied to the other, and it is questionable whether functional adaptation between the two compressors would even be possible.



In any case, any combination of the teachings of these references would not result in the claimed invention. Browne does not disclose or suggest a replaceable suction head. Olofsson et al. disclose replaceability, or at least scalability, of components, but only offers an external flange for connection to a drive transmission, and not to a selected suction head. Neither reference teaches replaceability of suction heads and delivery heads, as recited in claim 1. Neither reference addresses the issue addressed by the invention of claim 1, and neither reference provides a solution to that issue.

For at least the reasons noted above, no combination of the teachings of Browne and Olofsson et al. could render obvious the invention as recited in claim 1. Claims 2-5 and 11 depend from claim 1, and therefore also are not rendered obvious by the cited references, because of their dependence from claim 1, and also because of the additional features they recite. The rejection of claims 1-5 and 11, therefore, should be withdrawn.

The examiner rejected claims 6-9 as being unpatentable over Browne, in view of Olofsson et al, and further in view of Maniscalco.

Claims 6-9 depend from claim 1, which is discussed above with respect to Browne and Olofsson et al. Maniscalco discloses a compressor that includes valve devices 41, 42 removably mounted on cylinders 32. However, Maniscalco does not overcome the deficiencies of Browne and Olofsson et al. noted above. That is, Maniscalco does not disclose or suggest alternative coupling of various combinations of suction heads and delivery heads to a compressor body, as recited in claim 1. Because none of the cited references discloses or suggests at least this noted feature of claim 1, no combination of the teachings of these references could render obvious the invention as recited in claim 1. Claims 6-9 depend from



claim 1, and therefore also are not rendered obvious by the cited references. The rejection of claims 6-9, therefore, should be withdrawn.

The examiner rejected claims 10 and 13 as being unpatentable over Browne, in view of Olofsson, and further in view of Fraser et al.

Claims 10 and 13 depend from claim 1, which is discussed above with respect to Browne and Olofsson et al. Fraser et al. disclose a multiple-compressor system that relates to hermetic and electric motors. However, Fraser et al. do not overcome the deficiencies of Browne and Olofsson et al. noted above. That is, Fraser et al. do not disclose or suggest alternative coupling of various combinations of suction heads and delivery heads to a compressor body, as recited in claim 1. Because none of the cited references discloses or suggests at least this noted feature of claim 1, no combination of the teachings of these references could render obvious the invention as recited in claim 1. Claims 10 and 13 depend from claim 1, and therefore also are not rendered obvious by the cited references. The rejection of claims 10 and 13, therefore, should be withdrawn.

The examiner rejected claim 12 as being unpatentable over Browne, in view of Olofsson, and further in view of Voggenthaler.

Claim 12 depends from claim 1, which is discussed above with respect to Browne and Olofsson et al. Voggenthaler discloses a rotary air compressor that utilizes cap screws 128 to fasten a pulley 130 to a coupling flange 126. However, Voggenthaler does not overcome the deficiencies of Browne and Olofsson et al. noted above. That is, Voggenthaler does not disclose or suggest alternative coupling of various combinations of suction heads and delivery heads to a compressor body, as recited in claim 1. Because none of the cited references discloses or suggests at least this noted feature of claim 1, no combination of the



teachings of these references could render obvious the invention as recited in claim 1. Claim 12 depends from claim 1, and therefore also is not rendered obvious by the cited references. The rejection of claim 12, therefore, should be withdrawn.

New claims 14-25 are added to recite additional aspects of the invention. For at least the reasons set forth above, it is submitted that claims 14-25 are also allowable over the cited references.

Based on the foregoing, it is submitted that all objections and rejections have been overcome. It is therefore requested that the Amendment be entered, the claims allowed, and the case passed to issue.

Respectfully submitted,



January 6, 2011

Date

IP STRATEGIES  
Customer No. 49691  
Thomas M. Champagne  
Registration No. 36,478  
(828) 253-8600